

CURRICULUM VITAE

Name: Jean Honorio

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Modern statistical problems are high dimensional (big data). My research in this area focus on developing computationally and statistically efficient algorithms, understanding their behavior using concepts such as convergence, sample complexity, and privacy, and designing new modeling paradigms such as models rooted in game theory. My theoretical and algorithmic work is directly motivated by, and contributes to, applications in political science (affiliation and influence), neuroscience (brain disorders such as addiction), and genetics (diseases such as cancer).

I. POSITIONS.

- Assistant Professor in the Computer Science Department.
Since August 2015, Purdue University.
- Postdoctoral Associate in the Computer Science and Artificial Intelligence Lab (working with Tommi Jaakkola).
November 2012 to August 2015, Massachusetts Institute of Technology.

II. EDUCATION.

- PhD in Computer Science (advisor: Dimitris Samaras, co-advisor: Luis Ortiz).
September 2006 to August 2012, Stony Brook University, New York.
- MSc in Computer Science.
September 2004 to August 2006, George Washington University, Washington DC.
- BSc in Systems Engineering.
April 1993 to July 1997, Universidad de Lima, Lima/Peru.

III. JOURNAL PUBLICATIONS (COMPUTER SCIENCE).

1. "On the Statistical Efficiency of $L_{1,p}$ Multi-Task Learning of Gaussian Graphical Models". (*under review, preprint online*)
Honorio J., Jaakkola T., Samaras D.
Submitted on October 21, 2015. Currently under review.
2. "Learning the Structure and Parameters of Large-Population Graphical Games from Behavioral Data".
Honorio J., Ortiz L.
Journal of Machine Learning Research (JMLR), 16(Jun): pp. 1157-1210, 2015.
3. "Predictive Sparse Modeling of fMRI Data for Improved Classification, Regression, and Visualization Using the k-Support Norm".
Belilovsky E., Gkirtzou K., Misyrlis M., Konova A., **Honorio J.**, Alia-Klein N., Goldstein R., Samaras D., Blaschko M.
Computerized Medical Imaging and Graphics, 46(1): pp. 40-46, 2015.
4. "Can a Single Brain Region Predict a Disorder?".
Honorio J., Tomasi D., Goldstein R., Leung H.C., Samaras D.
IEEE Transactions on Medical Imaging, 31(11), 2012.
5. "Digital Analysis and Visualization of Swimming Motion".
Kirmizibayrak C., **Honorio J.**, Jiang X., Mark R., Hahn J.
The International Journal of Virtual Reality, 10(3), 2011.

IV. REFEREED CONFERENCE PROCEEDINGS.

6. "Reconstructing a Bounded-Degree Directed Tree Using Path Queries". (*under review, preprint online*)
Wang Z., **Honorio J.**
Submitted on Jul 13, 2016. Currently under review.
7. "From Behavior to Sparse Graphical Games: Efficient Recovery of Equilibria". (*under review, preprint online*)
Ghoshal A., **Honorio J.**
Submitted on Jul 08, 2016. Currently under review.
8. "Information-Theoretic Lower Bounds on Learning the Structure of Bayesian Networks". (*under review, preprint online*)
Ghoshal A., **Honorio J.**
Submitted on May 20, 2016. Currently under review.
9. "On the Sample Complexity of Learning Sparse Graphical Games". (*under review, preprint online*)
Honorio J.
Submitted on May 20, 2016. Currently under review.

10. “Structured Prediction: From Gaussian Perturbations to Linear-Time Principled Algorithms”. (presentation)
Honorio J., Jaakkola T.
Uncertainty in Artificial Intelligence (UAI). New York, 2016. (Acceptance rate: 31%, presentation: 9.2%)
 11. “Information-Theoretic Lower Bounds for Recovery of Diffusion Network Structures”. (presentation)
Park K., **Honorio J.**
IEEE International Symposium on Information Theory (ISIT). Barcelona/Spain, 2016. (accepted)
 12. “A Unified Framework for Consistency of Regularized Loss Minimizers”. (*presentation*)
Honorio J., Jaakkola T.
International Conference on Machine Learning (ICML). Beijing/China, 2014. (Acceptance rate: 25%)
 13. “Tight Bounds for the Expected Risk of Linear Classifiers and PAC-Bayes Finite-Sample Guarantees”.
Honorio J., Jaakkola T.
Artificial Intelligence and Statistics (AISTATS). Reykjavik/Iceland, 2014. (Acceptance rate: 35.8%)
 14. “Inverse Covariance Estimation for High-Dimensional Data in Linear Time and Space: Spectral Methods for Riccati and Sparse Models”.
Honorio J., Jaakkola T.
Uncertainty in Artificial Intelligence (UAI). Washington, 2013. (Acceptance rate: 31.3%)
 15. “Two-Sided Exponential Concentration Bounds for Bayes Error Rate and Shannon Entropy”. (*presentation*)
Honorio J., Jaakkola T.
International Conference on Machine Learning (ICML). Atlanta, 2013. (Acceptance rate: 23.5%)
 16. “fMRI Analysis of Cocaine Addiction Using k-Support Sparsity”.
Gkirtzou K., **Honorio J.**, Samaras D., Goldstein R., Blaschko M.
IEEE International Symposium on Biomedical Imaging (ISBI). California, 2013. (Acceptance rate: 53.9%)
 17. “Convergence Rates of Biased Stochastic Optimization for Learning Sparse Ising Models”. (*presentation*)
Honorio J.
International Conference on Machine Learning (ICML). Edinburgh/Scotland, 2012. (Acceptance rate: 27.3%)
 18. “Variable Selection for Gaussian Graphical Models”.
Honorio J., Samaras D., Rish I., Cecchi G.
Artificial Intelligence and Statistics (AISTATS). Canary Islands/Spain, 2012. (Acceptance rate: 30%)
 19. “Lipschitz Parametrization of Probabilistic Graphical Models”.
Honorio J.
Uncertainty in Artificial Intelligence (UAI). Barcelona/Spain, 2011. (Acceptance rate: 33.7%)
 20. “Multi-Task Learning of Gaussian Graphical Models”. (*presentation*)
Honorio J., Samaras D.
International Conference on Machine Learning (ICML). Haifa/Israel, 2010. (Acceptance rate: 25.6%)
 21. “Simple Fully Automated Group Classification on Brain fMRI”.
Honorio J., Samaras D., Tomasi D., Goldstein R.
IEEE International Symposium on Biomedical Imaging (ISBI). Rotterdam/The Netherlands, 2010. (Acceptance rate: 53.1%)
 22. “Sparse and Locally Constant Gaussian Graphical Models”.
Honorio J., Ortiz L., Samaras D., Paragios N., Goldstein R.
Neural Information Processing Systems (NIPS). Vancouver/Canada, 2009. (Acceptance rate: 23.8%)
 23. “Task-Specific Functional Brain Geometry from Model Maps”.
Langs G., Samaras D., Paragios N., **Honorio J.**, Alia-Klein N., Tomasi D., Volkow N., Goldstein R.
Medical Image Computing and Computer-Assisted Intervention (MICCAI). New York, 2008. (Acceptance rate: 35%)
- V. INVITED BOOK CHAPTERS.**
24. “Variable Selection in Gaussian Markov Random Fields”.
Honorio J., Samaras D., Rish I., Cecchi G.
In “Log-Linear Models, Extensions and Applications”, edited by Aravkin A., Deng L., Heigold G., Jebara T., Kanevski D., Wright S. (to be published on December, 2015)
 25. “Classification on Brain Functional Magnetic Resonance Imaging: Dimensionality, Sample Size, Subject Variability and Noise”.
Honorio J.
In “Frontiers of Medical Imaging”, edited by Chen C., World Scientific Publishing Company, 2014.
- VI. REFEREED WORKSHOPS AND NON-REFEREED CONFERENCES.**
26. Full paper: “Integration of PCA with a Novel Machine Learning Method for Reparameterization and Assisted History Matching Geologically Complex Reservoirs”.
Honorio J., Chen C., Gao G., Du K., Jaakkola T.
Society of Petroleum Engineers: 91th Annual Technical Conference and Exhibition. Houston, 2015.

27. Abstract: "Improving Interpretability of Graphical Models in fMRI Analysis via Variable-Selection".
Honorio J., Samaras D., Rish I., Cecchi G.
Organization for Human Brain Mapping, Annual Meeting. Hamburg/Germany, 2014.
28. Full paper: "Predicting Cross-task Behavioral Variables from fMRI Data Using the k-Support Norm". (*Best paper award*)
Misyrlis M., Konova A., Blaschko M., **Honorio J.**, Alia-Klein N., Goldstein R., Samaras D.
Medical Image Computing and Computer-Assisted Intervention (MICCAI), *Workshop on Sparsity Techniques in Medical Imaging*. Boston, 2014.
29. Full paper: "Integration of PCA and Streamline Information for the History Matching of Channelized Reservoirs".
Chen C., Gao G., **Honorio J.**, Gelderblom P., Jimenez E., Jaakkola T.
Society of Petroleum Engineers: 90th Annual Technical Conference and Exhibition. Amsterdam/The Netherlands, 2014.
30. Full paper: "fMRI Analysis with Sparse Weisfeiler-Lehman Graph Statistics".
Gkirtzou K., **Honorio J.**, Samaras D., Goldstein R., Blaschko M.
Medical Image Computing and Computer-Assisted Intervention (MICCAI), *Workshop on Machine Learning in Medical Imaging*. Nagoya/Japan, 2013.
31. Full paper: "Two-person Interaction Detection Using Body-Pose Features and Multiple Instance Learning".
Yun K., **Honorio J.**, Chattopadhyay D., Berg T., Samaras D.
IEEE Computer Vision and Pattern Recognition (CVPR), *Workshop on Human Activity Understanding from 3D Data*. Rhode Island. 2012.
32. Full paper: "Digital Analysis and Visualization of Swimming Motion".
Kirmizibayrak C., **Honorio J.**, Jiang X., Mark R., Hahn J.
Computer Animation and Social Agents (CASA), *Simulation of Sports Motion Workshop*. Chengdu/China, 2011.
33. Abstract: "Dopaminergic contribution to endogenous motivation during cognitive control breakdown".
Moeller S., Tomasi D., **Honorio J.**, Volkow N., Goldstein R.
Society for Neuroscience. Washington DC, 2011.
34. Short paper: "Learning Brain fMRI Structure Through Sparseness and Local Constancy".
Honorio J., Ortiz L., Samaras D., Goldstein R.
Neural Information Processing Systems (NIPS), *Workshop on Connectivity Inference in NeuroImaging*. Whistler/Canada, 2009.
35. Short paper: "A Functional Geometry of fMRI BOLD Signal Interactions".
Langs G., Samaras D., Paragios N., **Honorio J.**, Golland P., Alia-Klein N., Tomasi D., Volkow N., Goldstein R.
Neural Information Processing Systems (NIPS), *Workshop on Connectivity Inference in NeuroImaging*. Whistler/Canada, 2009.

VII. JOURNAL PUBLICATIONS (NEUROSCIENCE).

36. "Methylphenidate Enhances Executive Function and Optimizes Prefrontal Function in Both Health and Cocaine Addiction".
Moeller S., **Honorio J.**, Tomasi D., Parvaz M., Woicik P., Volkow N., Goldstein R.
Cerebral Cortex, 24(3): pp. 643-653, 2014.
37. "Dopaminergic Involvement During Mental Fatigue in Health and Cocaine Addiction".
Moeller S., Tomasi D., **Honorio J.**, Volkow N., Goldstein R.
Translational Psychiatry, 2: e176, 2012.
38. "Enhanced Midbrain Response at 6-month Follow-up in Cocaine Addiction, Association with Reduced Drug-related Choice".
Moeller S., Tomasi D., Woicik P., Maloney T., Alia-Klein N., **Honorio J.**, Telang F., Wang G., Wang R., Sinha R., Carise D., Astone-Twerell J., Bolger J., Volkow N., Goldstein R.
Addiction Biology, 17(6): pp. 1013-25, 2012.
39. "Disrupted Functional Connectivity with Dopaminergic Midbrain in Cocaine Abusers".
Tomasi D., Volkow N., Wang R., **Honorio J.**, Maloney T., Alia-Klein N., Woicik P., Telang F., Goldstein R.
Public Library of Science (PLoS ONE), 2010.
40. "Oral Methylphenidate Normalizes Cingulate Activity in Cocaine Addiction During a Salient Cognitive Task".
Goldstein R., Woicik P., Maloney T., Tomasi D., Alia-Klein N., Shan J., **Honorio J.**, Samaras D., Ruiliang W., Telang F., Wang G., Volkow N.
Proceedings of the National Academy of Sciences, 107(38), 2010.
41. "Dopaminergic response to drug words in cocaine addiction".
Goldstein R., Tomasi D., Alia-Klein N., **Honorio J.**, Maloney T., Woicik P., Wang R., Telang F., Volkow N.
Journal of Neuroscience 29(18), 2009.
42. "Anterior cingulate cortex hypoactivation to an emotionally salient task in cocaine addiction: brain-behavior dissociation".
Goldstein R., Alia-Klein N., Tomasi D., **Honorio J.**, Maloney T., Woicik P., Wang R., Telang F., Volkow N.
Proceedings of the National Academy of Sciences, 106(23), 2009.

VIII. CONFERENCE PRESENTATIONS AND INVITED TALKS.

- Workshop on Information Theoretic Methods in Science and Engineering. (*Invited talk*)
September 21-23, 2016, Helsinki/Finland.
- “Information-Theoretic Lower Bounds for Recovery of Diffusion Network Structures”. (*Student: Keehwan Park*)
July 12, 2016, IEEE International Symposium on Information Theory (ISIT), Barcelona/Spain.
- “Structured Prediction: From Gaussian Perturbations to Linear-Time Principled Algorithms”.
June 28, 2016, Uncertainty in Artificial Intelligence (UAI), New York.
- Workshop on Pattern Recognition and Applied Artificial Intelligence. (*Keynote speaker*)
December 15-16, 2015, Pontificia Universidad Catolica del Peru, Lima/Peru.
- “Learning Structure from Data: Applications, Algorithms, Statistical Efficiency and General Frameworks”.
December 18, 2015, Universidad Nacional de Ingeniería, Lima/Peru.
December 15, 2015, Universidad Nacional Mayor de San Marcos, Lima/Peru.
- “Structured Prediction: From Gaussian Perturbations to Linear-Time Principled Algorithms”.
September 16, 2015, Purdue University, Indiana.
- “Learning Structure from Data: Applications, Algorithms, Statistical Efficiency and General Frameworks”.
March 30, 2015, Stony Brook University, New York.
March 27, 2015, Stevens Institute of Technology, New Jersey.
March 24, 2015, Rutgers University, New Jersey.
March 16, 2015, Vanderbilt University, Tennessee.
March 10, 2015, National University of Singapore, Singapore.
March 3, 2015, University of Arizona, Arizona.
February 26, 2015, Michigan State University, Michigan.
February 19, 2015, Rice University, Texas.
February 2, 2015, Purdue University, Indiana.
- “A Unified Framework for Consistency of Regularized Loss Minimizers”.
June 24, 2014, International Conference on Machine Learning (ICML), Beijing/China.
- “Two-Sided Exponential Concentration Bounds for Bayes Error Rate and Shannon Entropy”.
June 18, 2013, International Conference on Machine Learning (ICML), Atlanta.
- “Convergence Rates of Biased Stochastic Optimization for Learning Sparse Ising Models”.
November 7, 2012, Princeton University, New Jersey. (Host: Robert Schapire.)
September 25, 2012, Columbia University, New York. (Host: Michael Collins.)
June 27, 2012, International Conference on Machine Learning (ICML), Edinburgh/Scotland.
- “Simultaneous and Group-Sparse Multi-Task Learning of Gaussian Graphical Models”.
September 27, 2012, Rutgers, New Jersey. (Host: Vladimir Pavlovic.)
- Provost’s Graduate Student Lecture Series: “Learning Gaussian Graphical Models with Domain Specific Priors”. (Award)
May 2, 2012, Stony Brook University, New York.
- “Lipschitz Parametrization of Probabilistic Graphical Models”.
July 14, 2011, Universidad Autónoma de Barcelona, Barcelona/Spain. (Host: Maria Vanrell.)
- “Multi-Task Learning of Gaussian Graphical Models”.
June 24, 2010, International Conference on Machine Learning (ICML), Haifa/Israel.
- “Simple Fully Automated Group Classification on Brain fMRI”.
April 23, 2010, Psychology Department, Stony Brook University, New York. (Host: Hoi-Chung Leung.)
- “Classification and Structure Learning on Brain fMRI”.
March 29, 2010, IBM Watson Research Center, New York. (Host: Irina Rish.)
- “Machine Learning on Functional Magnetic Resonance Imaging of the Brain”.
May 26, 2008, Universidad Nacional de Ingeniería, Lima/Peru.
May 27, 2008, Universidad de Lima, Lima/Peru.

IX. PROFESSIONAL SERVICE.

- Reviewer, The Annals of Statistics, 2016.
- Reviewer, Neural Information Processing Systems (NIPS), 2016.
- Reviewer, IEEE International Symposium on Information Theory (ISIT), 2016.
- Reviewer, International Conference on Machine Learning (ICML), 2016.
- Reviewer, Artificial Intelligence and Statistics (AISTATS), 2016.
- Reviewer, Journal of Machine Learning Research (JMLR), 2016.

- Reviewer, Statistics and Computing (journal), 2015.
- Reviewer, The Annals of Statistics, 2015.
- Reviewer, Neural Information Processing Systems (NIPS), 2015.
- Reviewer, International Conference on Machine Learning (ICML), 2015.
- Senior Program Committee Member, International Joint Conference on Artificial Intelligence (IJCAI), 2015.
- Reviewer, Journal of Machine Learning Research (JMLR), 2014.
- Reviewer, Addiction Biology (journal), 2012.
- Reviewer, IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2011.
- Reviewer, Neural Information Processing Systems (NIPS), 2010.
- Reviewer, Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI), 2007.

X. MENTORING.

- Rashmi Rao, Semifinalist in the **Intel Science Talent Search**, 2010.
High-school student at Ward Melville, now attending Barnard College, Columbia University.
Project: “Pattern Classification of fMRI Data for Understanding Brain Activity in Drug Users”.
Other mentors: Dimitris Samaras, Rita Goldstein, George Baldo.

XI. AWARDS AND SCHOLARSHIPS.

- Purdue Research Foundation (PRF) International Travel Grant (US\$ 1,000)
May 2016, Purdue University, Indiana.
- Best Paper Award: “Predicting Cross-task Behavioral Variables from fMRI Data Using the k-Support Norm”.
September 27, 2014, Medical Image Computing and Computer-Assisted Intervention (MICCAI), *Workshop on Sparsity Techniques in Medical Imaging*, Boston.
- Top Graduate Student Award 2012.
February 2013, Stony Brook University, New York.
- Provost’s Graduate Student Lecture Series: “Learning Gaussian Graphical Models with Domain Specific Priors”.
May 2, 2012, Stony Brook University, New York.
- Catacosinos Computer Science Award (US\$ 7,500).
Fall 2011. Stony Brook University, New York.
- Institute for Biomedical Engineering Award (US\$ 8,300).
Spring 2005, George Washington University, Washington DC.
- Award for proposal “Improving the Cutting and Reconnection of Electricity Customers” (US\$ 2,000).
August 2001, Luz del Sur, Lima/Peru.
- Systems Engineering Department’s Scholarship for the highest GPA.
April to July 1996, Universidad de Lima, Lima/Peru.

XII. RESEARCH EXPERIENCE.

- Postdoctoral Associate in the Computer Science and Artificial Intelligence Lab (working with Tommi Jaakkola).
November 2012 to August 2015, Massachusetts Institute of Technology.
- Visitor in the Medical Imaging and Computer Vision Group.
September to November 2008, Applied Mathematics Department, Ecole Centrale Paris, Paris/France.
- Research Assistant in the Image Analysis Lab.
September 2006 to August 2012, Stony Brook University and Brookhaven National Laboratory, New York.
- Research Assistant in the Institute for Computer Graphics.
January 2005 to May 2006, George Washington University, Washington DC.
- Research Assistant in the Institute for System Engineering and Operations Research.
August 1995 to July 1996, Universidad de Lima, Lima/Peru.

XIII. ACADEMIC TEACHING EXPERIENCE (IN ORDER OF RESPONSIBILITIES).

- “CS 57800: Statistical Machine Learning”. <http://www.cs.purdue.edu/homes/jhonorio/16fall-cs57800.html>
Graduate level course.
Fall 2016, Computer Science Department, Purdue University, Indiana.
- “CS 59000-HLT: Hands-On Learning Theory”. <http://www.cs.purdue.edu/homes/jhonorio/16fall-cs59000hlt.html>
Graduate level course.
Fall 2016, Computer Science Department, Purdue University, Indiana.

- “CS 52000: Computational Methods In Optimization”. <http://www.cs.purdue.edu/homes/jhonorio/16spring-cs52000.html>
Graduate level course.
Spring 2016, Computer Science Department, Purdue University, Indiana.
- “CS 59000-MLT: Machine Learning Theory Seminar”. <http://www.cs.purdue.edu/homes/jhonorio/15fall-cs59000mlt.html>
Graduate level course.
Fall 2015, Computer Science Department, Purdue University, Indiana.
- **Instructor (Lecturer)** for “Computer Graphics II”.
Graduate level course.
Spring 2006, Computer Science Department, George Washington University, Washington DC.
- **Instructor (Lecturer)** for “Computer Animation”.
Graduate level course.
Fall 2005, Computer Science Department, George Washington University, Washington DC.
- **Lecturer** for “Databases I”, “Databases II” and “Systems Simulation”
Undergraduate level courses in the 4th year.
July to December 1998, Systems Engineering Department, Universidad Privada San Pedro, Chimbote/Peru.
- **Teaching Assistant** for “Foundation of Computer Science I”, “Computer Organization” and “Network Programming”.
Undergraduate level courses in the 1st year, 3rd year, and graduate level course respectively.
Fall 2006 and Spring 2007, Computer Science Department, Stony Brook University, New York.
- **Teaching Assistant** for “Programming Laboratory I” and “Programming Laboratory II”.
Undergraduate level courses in the 2nd year.
August to December 1996, Systems Engineering Department, Universidad de Lima, Lima/Peru.

XIV. NON-ACADEMIC TEACHING EXPERIENCE (SHORT COURSES FOR COMPANIES).

- Structured Analysis and Design.
August 9 to 20, 2004, SUNAT (Internal Revenue Service), Lima/Peru.
- Database Design.
July 19 to August 6, 2004, SUNAT (Internal Revenue Service), Lima/Peru.
- Component-Based Development with J2EE Platform.
January 5 to 16, 2004, Universidad del Pacífico, Lima/Peru.
- Web Development with J2EE.
January 6 to 10, 2003, Luz del Sur, Lima/Peru.

XV. PROFESSIONAL EXPERIENCE.

- Systems Analyst.
Responsibilities: end-user interviews, database design, GUI design, software development, project management, supervision of programmers, evaluation of products, Data-warehousing and web applications.
July 1998 to January 2003, Luz del Sur, Lima/Peru.
- Systems Programmer.
Responsibilities: end-user interviews, database design, GUI design, software development.
April 1997 to January 1998, Unión de Cervecerías Peruanas Backus & Johnston, Lima/Peru.